



Economic Impact Analysis Virginia Department of Planning and Budget

9 VAC 25-720/820 – Water Quality Management Planning Regulation/General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorous Discharges and Nutrient Trading in the Chesapeake Bay Watershed

Department of Environmental Quality

December 17, 2007

Summary of the Proposed Amendments to Regulation

The State Water Control Board (Board) is proposing to revise the total nitrogen and total phosphorous waste load allocations (WLAs) for the Doswell Wastewater Treatment Plant (WWTP) to exclude the portions attributable to Bear Island Paper Company (BIPCo), and add separate WLAs for BIPCo. The Board is also proposing to amend the definition of “existing facilities” to include plants that have WLAs in the Water Quality Management Planning Regulation, even if they do not have an individual Virginia Pollution Discharge Elimination System (VPDES) permit. This will allow those plants (such as BIPCo) to participate in the Nutrient Credit Exchange Program.

Result of Analysis

The benefits likely exceed the costs for all proposed changes.

Estimated Economic Impact

With these amendments, the Board proposes to do the following: (1) separate out the Bear Island Paper Company (BIPCo) waste load allocations (WLAs) for nitrogen and phosphorous from the Doswell WWTP WLAs, (2) amend the definition of “existing facility” to allow it to include any facility which holds a separate WLA (thereby including BIPCo in the definition of “existing facility”), and (3) amend the regulation to authorize any facility that fits the definition of “existing facility” to discharge to surface waters and exchange credits for total nitrogen and/or total phosphorous. In other words, any “existing facility”, including BIPCo, can

receive a general permit for total nitrogen and total phosphorous discharges and nutrient trading in the Chesapeake watershed in Virginia.

Under current regulation, Doswell WWTP and BIPCo WLAs are both under the jurisdiction of Hanover County, which owns and operates the Doswell WWTP. Under the proposed amendment, the BIPCo WLAs will be separated out from Doswell, allowing BIPCo to participate in the nutrient credit exchange program. The amendment should not have any effect on the environment, nor on the operations of Doswell WWTP or BIPCo, with the exception that BIPCo will now have an incentive to cut down on the amount of discharge or the concentration of nitrogen or phosphorous in its discharge in order to sell nutrient credits, which would be \$2/lb for nitrogen and \$4/lb for phosphorous.

This amendment does not change the total amount of allowable nitrogen and phosphorous discharge. Under current regulation, Doswell WWTP is allocated 65,601 lbs/year of total nitrogen and 14,923 lbs/year of total phosphorous. Under the proposed amendment, Doswell WWTP would be allocated 18,273 lbs/year of total nitrogen and 2,132 lbs/year of total phosphorous, and BIPCo will be allocated 47,328 lbs/year of total nitrogen and 12,791 lbs/year of total phosphorous. Since $18,273 + 47,328 = 65,601$ and $2,132 + 12,791 = 14,923$, clearly the total allowable amount of nitrogen and phosphorous that can be discharged is unchanged.

The nutrient allocations to BIPCo and Doswell WWTP (and, in fact, to all relevant facilities) are based on the design capacity of the plant and the annual average nutrient concentration. For example, the Doswell WWTP design flow for nitrogen is 1.0 million gallons per day (MGD) and the annual average total nitrogen concentration is 6.0 mg/L. Therefore, the total nitrogen waste load allocation (WLA) for Doswell WWTP for nitrogen is 18,273 lbs/year.¹ Similarly, the Doswell phosphorous concentration is 0.7, so the total phosphorous WLA is 2,132 lbs/yr.² BIPCo's design capacity is 4.2 MGD, with an annual average nitrogen concentration of 3.7 and a phosphorous concentration of 1.0, so BIPCo nitrogen and phosphorous allocations are 47,328 lbs/year and 12,791 lbs/year, respectively.³

¹ The equation is $WLA = \text{Design Flow} * \text{concentration} * 8.344 * 365$, where the design flow is measured in MGD, concentration is measured in mg/L, 8.344 is the conversion for mg/L into lbs/day, and 365 is the number of days in a year. So, the nitrogen WLA for Doswell WWTP is: $1.0 * 6.0 * 8.344 * 365 = 18,273$ lbs/year

² $1.0 * 0.7 * 8.344 * 365 = 2,132$

³ Nitrogen WLA: $4.2 * 3.7 * 8.344 * 365 = 47,328$, Phosphorous WLA: $4.2 * 1.0 * 8.344 * 365 = 12,791$

In late 2005, the Department of Environmental Quality (Department) adopted the Watershed General Permit Regulation (9 VAC25-820) to reduce nutrient loading into Virginia waterways that included facility-specific waste load allocations. The average annual nutrient concentrations were based on the Department's decision to reduce nutrient discharge by allowing facilities to utilize the full capacity of the plant design but restricting the nutrient concentration of the discharge. The facilities were granted a compliance period until January 1, 2011, at which point each facility must be in compliance with their assigned waste load allocation. Therefore, the WLAs assigned to Doswell WWTP and BIPCo represent reductions in the total nitrogen and phosphorous discharge, but the total reduction was agreed upon in earlier regulatory changes.

The separation of BIPCo allocations from Doswell was the result of a legal action taken by BIPCo, who appealed the adoption of the Watershed General Permit Regulation. Part of the settlement offer in that suit was to propose the separate allocations and to qualify BIPCo as a facility eligible to participate in the nutrient credit exchange program. BIPCo wants to participate in the nutrient credit exchange program so that it can acquire its own compliance credits rather than relying on the current agreement with Hanover County. Hanover County has endorsed the proposed separate nitrogen and phosphorous load allocations.

Because the waste load allocations were made using the same formula used for all facilities' allocations, we have no reason to believe that the allocations themselves will lead to costs or benefits. (For example, there is no reason to believe that we will see a scenario like the following: Plant A discharges 75 units. Plant B discharges 25 units. Plant A and Plant B allocations are separated so each is allowed to discharge only 50 units. In this case, if both plants strive to be in compliance with regulation, total discharge would be reduced from 100 units to 75 units, even though the total allowable amount has not changed.) Therefore, the costs and benefits will depend upon how BIPCo uses its allocation. Is BIPCo more likely to buy or sell nutrient exchange credits if they have a separate WLA than they would under Hanover County's WLA? If they are more likely to buy or sell credits, will they buy credits or sell credits and what will be the economic effects of the exchange on the company and Virginia citizens?

These two questions are difficult to answer for two reasons. First, although the Department knows that BIPCo would be held accountable by Hanover County for any violations of the Doswell permit that could be attributed to the performance of BIPCo's wastewater

treatment facility, the Department is not privy to the terms of the agreement. We do not know if BIPCo could come to an internal agreement with Hanover County about buying or selling credits. Second, although all facilities affected by the Watershed General Permit Regulation have been required to submit compliance plans with details on how they will meet the new waste load requirements, because BIPCo was not considered a separate facility, it has not submitted a plan. BIPCo will be required to submit a plan only with the passage of this regulatory change. Without a plan, we do not know if BIPCo will buy or sell credits through the nutrient credit exchange program.

In the end, if BIPCo would be able to exchange credits through Doswell under the current agreement, this amendment leaves the status quo unchanged and, therefore, provides neither cost nor benefit. If BIPCo would not be able to exchange credits under the current system, then assuming that the nutrient credit exchange program is economically beneficial to Virginia, the benefits of this amendment outweigh the costs.

Businesses and Entities Affected

Doswell WWTP, Bear Island Paper Company (BIPCo), and whichever facilities BIPCo chooses to exchange credits with (if it chooses to exchange credits), are affected by the proposed amendments.

Localities Particularly Affected

Only Hanover County, which owns and operates Doswell WWTP, is directly affected by the proposed amendments. If Bear County Island Paper Company sells nutrient discharge credits to facilities in different counties, however, those counties will also be affected.

Projected Impact on Employment

The proposed changes are not anticipated to have any impact on employment.

Effects on the Use and Value of Private Property

The proposed changes will allow Bear Island Paper Company to participate in the Nutrient Credit Exchange Program, which could increase the value of the business, thereby improving the use and value of private property.

Small Businesses: Costs and Other Effects

Since BIPCo is not a small business and, according to the Department, none of the facilities from which it could acquire/to which it could sell credits are small businesses, the proposed amendment should have no effect on small businesses.

Small Businesses: Alternative Method that Minimizes Adverse Impact

The proposed amendments do not add cost to, or otherwise affect, small businesses.

Real Estate Development Costs

The proposed amendments do not create additional costs related to the development of real estate for commercial or residential purposes.

Legal Mandate

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 2.2-4007.04 of the Administrative Process Act and Executive Order Number 36 (06). Section 2.2-4007.04 requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. Further, if the proposed regulation has adverse effect on small businesses, Section 2.2-4007.04 requires that such economic impact analyses include (i) an identification and estimate of the number of small businesses subject to the regulation; (ii) the projected reporting, recordkeeping, and other administrative costs required for small businesses to comply with the regulation, including the type of professional skills necessary for preparing required reports and other documents; (iii) a statement of the probable effect of the regulation on affected small businesses; and (iv) a description of any less intrusive or less costly alternative methods of achieving the purpose of the regulation. The analysis presented above represents DPB's best estimate of these economic impacts.